1922]

land on study of preserved material, and later observed by Wille<sup>5</sup> who finds that it is colorless, and would on that account consider it not an alga as was at first supposed, but a fungus, without clear relationship to any other forms, but possibly to be placed close to the *Chytridiaceae*. The material obtained by the writer was preserved and no observations on color or lack of it could be made. The organism was abundant, and most of the cells were forming aplanospores, either in the center of the cells or in one of the arms.

BOTANICAL LABORATORY, UNIVERSITY OF PENNSYLVANIA.

## ADDITIONS TO THE FLORA OF CONNECTICUT. SERIES 2.

The following notes are a continuation of the series published in this journal in 1917, and include the more important results of the work on the flora of the state since that time, bringing the record up to the close of the season of 1920, and including a few entries of the following year.

As in the earlier list, forms not previously reported from the state have been marked, if native, with an asterisk, and if introduced, with a dagger.

The legislature of the state has changed the names of the towns of Huntington and Chatham to Shelton and East Hampton respectively, also has divided the town of Orange into the towns of Orange and West Haven. These changes should be noted in comparisons of present and future records with those made previously.

\*Polypodium vulgare L., var. attenuatum Milde. Rare. With the typical form in Redding and Ridgefield (Eames & C. C. Godfrey).

Woodwardia areolata (L.) Moore. North Stonington (Donald White & Harger); Newington and Plainville (H. C. Bigelow).

Thelypteris simulata (Davenp.) Nieuwl. Aspidium simulatum Davenp. Dryopteris simulata Davenp. Windham (Bissell & Weatherby); Union (Weatherby). Not previously reported from Tolland or Windham Counties.

Botrychium ternatum (Thunb.) Sw., var. intermedium D. C. Eaton. Woodstock (Weatherby); Eastford (Bissell). Not previously reported from Windham Co.

<sup>&</sup>lt;sup>5</sup> Wille, J. N. F. Algologische Notizen IX-XIV. Nyt Mag. F. Naturviden-skab. 41<sup>1</sup>: 89–185. 1903 (See page 171).

Equisetum pratense Ehrh. Shaded alluvium of the Farmington River, Bloomfield (Weatherby). Previously reported only from the Housatonic Valley.

\*Equiserum variegatum Schleich. Salisbury (Bissell). All the Salisbury material referred to var. *Jesupi* in the Catalogue seems to belong rather with the typical form of the species.

E. VARIEGATUM Schleich., var. Jesupi A. A. Eaton. Kent (A. E. Blewitt).

Lycopodium inundatum L., var. Bigelovii Tuckerm. Woodstock and Killingly (G. E. Nichols); Plainville (Bissell). Extension of range northward. This variety belongs with the group of plants which in Connecticut are found chiefly near the coast, but extend northward in sand-plain areas.

L. Annotinum L., var. Acrifolium Fernald. Union (Weatherby); Barkhamstead (A. E. Blewitt); Salisbury (A. F. Hill). Extension of range eastward and westward.

Pinus resinosa Ait. Kent (A. E. Moss). Previously reported only from Granby and Salisbury

Picea canadensis (Mill.) BSP. Dry soil near Lake Pachaug, Griswold (G. E. Nichols). See note under Abies balsamea.

Abies balsamea (L.) Mill. Griswold (G. E. Nichols). This species together with *Picea canadensis* is very common in a sandy area adjoining a cemetery in Griswold, where they are both reproducing abundantly among the birches.

Chamaecyparis thyoides (L.) BSP. Litchfield (G. E. Nichols). Not previously reported from Litchfield Co.

Potamogeton natans L. Thompson (Weatherby, Rhodora xxi. 75). Not before reported from Windham Co.

P. AMERICANUS C. & S. Goshen, Litchfield and Salisbury (G. E. Nichols), Washington (A. W. Evans).

\*P. Praelongus Wulf., var. angustifolius Graebner. Plentiful in Umpawaug Pond, Redding (Eames).

\*Najas Guadalupensis (Spreng.) Morong. Prof. Fernald informs us that there is in the Gray Herbarium a specimen of this species labelled "Conn., Charles Wright." The plant should be looked for by collectors in the state.

Vallisneria americana Michx. V. spiralis of Am. authors, not L. Bantam Lake, Morris (G. E. Nichols).

\*Panicum polyanthes Schultes. Guilford (W. R. Dudley, 1882;

specimen in Herb. N. E. Botanical Club).

Muhlenbergia Mexicana (L.) Trin. As a weed in a shaded roadside near a farmhouse, Colebrook (Weatherby). Previously known from Litchfield Co. only from an old collection by J. P. Brace about 1820.

Alopecurus aristulatus Michx. A. geniculatus, var. aristulatus Torr. Franklin (R. W. Woodward, Rhodora xx. 97); Somers (Bissell); Canaan (A. E. Blewitt). Not before reported from eastern Connecticut.

Sphenopholis obtusata (Michx.) Scribn. Glastonbury (Mrs. F. W. Starmer); Sharon (Weatherby). Not previously reported inland.

AGROSTIS ALBA, Var. ARISTATA Gray. Old Lyme (R. W. Woodward, Rhodora xx. 97).

Molinia coerulea Moench. Well established in a field, Chaplin (Bissell & Weatherby); dry hillside, Shelton (Harger).

Melica striata (Michx.) Hitchc. Woodbury and Cornwall (Harger).

GLYCERIA FERNALDII (Hitchc.) St. John. Woodstock (Weatherby),

Goshen (Harger).

Puccinellia distans (L.) Parl. Norwalk and Darien (Eames). \*Festuca ovina L., var. hispidula Hack. Dry, steep, rather barren hillside, Franklin (R. W. Woodward, Rhodora xxi. 72); roadside, Canton (A. Lorenz).

AGROPYRON CANINUM (L.) Beauv. East Granby (Harger), Waterbury (A. E. Blewitt) Union, Somers, East Haddam, Southington (Bissell).

\*A. CANINUM (L.) Beauv., f. Pubescens (Scribn. & Sm.) Pease &

Moore. Union (Bissell & Weatherby); Salisbury (Bissell).

A. CANINUM (L.) Beauv., var. Tenerum (Vasey) Pease & Moore. Dry, rocky open woods, Canaan (Bissell & Weatherby), Sharon (Weatherby). Almost certainly native at these stations; previously known only as an introduced plant at Naugatuck.

\*Eleocharis interstincta (Vahl) R. & S. Shallow water of Long Pond, Thompson (Una F. & C. A. Weatherby, Rhodora xxi. 75).

E. Robbinsii Oakes. Thompson (Rhodora xxi. 75) and Woodstock (Weatherby). Not previously reported from Windham Co.

E. OLIVACEA Torr. Thompson (Weatherby, Rhodora xxi. 75). Not previously reported east of the Connecticut River.

Scirpus subterminalis Torr. Thompson (Rhodora xxi. 75) and Woodstock (Weatherby). Not previously reported from Windham Co.

S. Campestris Britton, var. Novae-Angliae (Britton) Fernald. Guilford (Bissell). An extension of range eastward.

S. CYPERINUS (L.) Kunth, var. Pelius Fernald. Washington (A. W. Evans), Colebrook (Bissell, M. L. Fernald & Weatherby). Not before reported from Litchfield Co.

Rynchospora Macrostachya Torr. Woodstock (Weatherby). Not previously reported from northeastern Connecticut.

Carex Deweyana Schwein. Ashford (Weatherby). Not hitherto reported east of Southington and Guilford.

C. STRICTA Lam., var. Curtissima Peck. Rare or occasional throughout western Connecticut in intimate association with the species, intergrading sometimes even in the same tussock (Eames, Harger).

C. Umbellata Schkuhr, var. brevirostris Boott. Salisbury (Weatherby).

C. PANICEA L. Killingworth (Harger).

С. Росумоврна Muhl. Thompson (Weatherby). Not previously reported in northeastern Connecticut.

C. Limosa L. Litchfield (Harger).

C. TRICHOCARPA Muhl. Abundant on low meadows near the Housatonic River at Derby and Shelton (Harger). An extension of range southward.

Arisaema triphyllum (L.) Schott, var. Stewardsonii (Britton) G. T. Stevens. Thompson and Waterford (Weatherby); abundant over a considerable area at Southbury (Harger); Morris (G. E. Nichols); Norfolk (A. W. Evans). Not previously reported from Windham or New London Counties.

A. TRIPHYLLUM (L.) Schott, var. Pusillum Peck. North Stonington (Donald White & Harger); Madison (Bissell); East Lyme (Harger). Not previously reported east of the Connecticut Valley.

Pontederia cordata L., var. angustifolia Torr. Thompson (Weatherby, Rhodora xxi. 75). An extension of range northward.

Juncus Dudleyi Wiegand. Union (Bissell). Not previously reported from eastern Connecticut.

- J. DICHOTOMUS Ell., var. PLATYPHYLLUS Wiegand. Sandy ground in the flood-plain of the Connecticut River, East Haddam (Bissell). The specimen from South Windsor which was referred to J. Dudleyi in the Catalogue, proves on further study to belong here. These stations place this variety definitely in the group of plants, chiefly of the coastal plain, which in Connecticut are found only near the coast and inland in the central lowland.
- J. EFFUSUS L., var. DECIPIENS Buch. Shelton (Eames). Previously reported only from Madison.
- J. MILITARIS Bigel. Thompson (Weatherby, Rhodora xxi. 74). Not previously reported from Windham Co.

\*Luzula campestris (L.) DC., var. bulbosa Wood. In hard, dry soil, Old Lyme (R. W. Woodward, Rhodora xx. 97).

Smilacina trifolia (L.) Desf. Thompson (Weatherby, Rhodora xxi. 74). Not previously reported from Windham Co.

Streptopus amplexifolius (L.) DC. Granby (I. Holcomb). Previously reported only from Salisbury.

S. Roseus Michx. Union (Bissell & Weatherby). Extension of range eastward.

Iris pseudacorus L. South Windsor (C. W. Vibert); Winchester (A. E. Blewitt). Previously reported only from towns bordering tide-water.

†I. LAEVIGATA Fisch. & Mey. Japanese Iris. Marsh in the flood-plain of the Connecticut River, half a mile from the nearest house (C. W. Vibert). Fugitive from eastern Asia.

SISYRINCHIUM MUCRONATUM Michx. Bolton and Ellington (Weatherby). An extension of range northward and eastward, bringing this species to the edge of the eastern highland.

S. ATLANTICUM Bickn. A white-flowered form is plentiful in several meadows in Orange and occasional elsewhere (Eames).

Coralorrhiza trifida Chatelain. Union (Bissell & Weatherby). Not previously reported from Tolland Co.

Rumex Acetosa L. West Hartford (Weatherby); Stratford (H. S. Clark); Norfolk (Harger).

Spergularia canadensis G. Don. Old Lyme (R. W. Woodward, Rhodora xx. 97). Previously reported only from Groton.

Stellaria Borealis Bigel., var. Isophylla Fernald. Thompson (Weatherby); Waterbury (A. E. Blewitt). Not hitherto reported east of the Connecticut Valley.

S. AQUATICA L. Oxford (A. P. Harger). Previously reported only from Newtown, which station is now flooded.

Lychnis Flos-cuculi L. Southbury (F. S. Collins & Harger).
Ranunculus allegheniensis Britton. Occasional throughout western Connecticut.

†R. REPENS L., var. PLENIFLORUS Fernald. Rare. Fields and roadsides, escaped from cultivation. Canaan (Weatherby, Harger); Redding (Eames); Danbury (Bissell).

R. REPTANS L. East Haddam (Harger).

†Aconitum Napellus L. Established along roadsides, Warren (G. E. Nichols).

ACTAEA RUBRA (Ait.) Willd., f. NEGLECTA (Gillman) Robinson. Franklin (R. W. Woodward, Rhodora xxi. 116).

†Berberis Thunbergii DC. Established in swampy woods as an escape from cultivation, New Haven (G. E. Nichols).

DICENTRA CANADENSIS (Goldie) Walp. Hartland (Weatherby).

Corydalis sempervirens (L.) Pers. A white-flowered form has been collected at Orange (Harger et al.).

†Eruca sativa Mill. Rare. Bridgeport (Eames).

CARDAMINE PRATENSIS L. South Windham (K. P. Jansson).

Arabis hirsuta (L.) Scop. Killingly (E. E. Brown & Weatherby). Not previously reported from Windham Co.

Tiarella cordifolia L. Bolton and Union (Weatherby). Not previously reported east of the Connecticut River.

Ribes triste Pall., var. Albinervium (Michx.) Fernald. Canaan (Harger).

Physocarpus opulifolius (L.) Maxim. Banks of streams at Lyme (G. E. Nichols), and Washington (A. W. Evans).

AMELANCHIER STOLONIFERA Wiegand. Thompson (Weatherby). Probably occasional throughout in sterile soils.

Kerria Japonica (Thunb.) DC. Monroe (Harger).

Rubus neglectus Peck. Thomaston (Harger).

AGRIMONIA PARVIFLORA Ait. Middletown (F. W. Kilbourne). Extension of range eastward.

\*Prunus maritima Marsh., f. flava G. S. Torrey. Sandy soil, East Haven (G. E. Nichols).

P. VIRGINIANA L., var. LEUCOCARPA Wats. Morris (G. E. Nichols).

Lespedeza Nuttallii Darl. Watertown (A. E. Blewitt). Not before reported from Litchfield Co.

Phaseolus polystachyus (L.) BSP. Beacon Falls (A. P. Harger). Not previously reported away from tide-water in western Connecticut.

LINUM MEDIUM Planch. Washington (A. W. Evans); Union (Weatherby). Not before reported from Litchfield or Tolland Counties.

Acer Pennsylvanicum L. Low swampy ground, Darien (G. E. Nichols). A southerly extension of range, and an interesting station for this species, in that it was growing in the same swamp with Liquidambar and other southern species.

\*Impatiens biflora (Walt.) BSP., f. immaculata Weatherby, Rhodora xix. 117 (1917). Thompson and Wolcott (Weatherby); Waterbury (A. E. Blewitt); and probably elsewhere.

\*I. BIFLORA (Walt.) BSP., f. CITRINA Weatherby, Rhodora xix. 115 (1917). Thompson (Bissell & Weatherby); Southington (Una. F. Weatherby).

\*I. BIFLORA (Walt.) BSP., f. PLATYMERIS Weatherby, Rhodora xxi. 99 (1917). Southbury (Una F. Weatherby).

\*I. BIFLORA (Walt.) BSP., f. Peasei A. H. Moore. Moist roadsides, Washington (A. W. Evans).

†Hypericum aureum Bart. Waste ground near a park, Hartford (C. W. Vibert). Fugitive from the southeastern U. S.

H. PROLIFICUM L. Established in woods, Washington (A. W. Evans).

\*H. dissimulatum Bickn. Voluntown (R. W. Woodward).

\*Helianthemum propinquum Bickn. Dry field near the Rhode Island line at North Stonington (Harger); Southington (Bissell).

Lythrum alatum Pursh. Suffield (J. F. Smith); Woodbury (Harger).

Myriophyllum exalbescens Fernald. *M. spicatum* Am. auth. not L. Occasional throughout western Connecticut, usually sterile, but flowering at one pond in Danbury (Eames & C. C. Godfrey).

EPILOBIUM MOLLE Torr. Franklin (R. W. Woodward, Rhodora xxi. 116). Not previously reported east of the Connecticut Valley.

\*CIRCAEA CANADENSIS Hill. *C. intermedia* Ehrh. Rich moist woods, Union and Kent (Weatherby). At the former station growing with *C. alpina* and *C. latifolia* and appearing like a hybrid between them.

Aralia spinosa L. Spreading from the root and thoroughly established in rear of a ruined house and in adjacent pasture at Litch-field (Harger).

Sanicula trifoliata Bickn. Middlefield (Harger); Hartland (Bissell). The latter station an extension of range northward.

Conioselinum Chinense (L.) BSP. Goshen and Warren (Harger). Probably occasional in cold swamps of northwestern Connecticut. Moneses grandiflora (L.) Gray. Windham, at South Windham (K. P. Jansson).

Ledum Groenlandicum Oeder. North Canaan (G. E. Nichols). Rhododendron Maximum L. Berlin (Miss M. E. Bowers). Not before reported from Hartford Co.

Arctostaphylos Uva-ursi (L.) Spreng., var. coactilis Fernald & Macbride. Union and Putnam (Weatherby). Extensions of range northeastward.

†Primula officinalis Jacq. English Cowslip. A colony of forty or fifty plants apparently well established and seeding in shaded calcareous soil on a river bank, Salisbury (Weatherby).

Lysimachia producta (Gray) Fernald. Oxford (Harger).

†L. CLETHROIDES Duby. Dry waste ground, Hartford (Donald Deane). Fugitive from Japan.

Bartonia Paniculata (Michx.) Robinson. Guilford (G. H. Bartlett & Harger). Not previously reported from New Haven Co.

Convolvulus spithamaeus L. Franklin (R. W. Woodward). Not before reported east of the Connecticut Valley.

Hydrophyllum virginianum L. Watertown and Naugatuck (A. E. Blewitt); Beacon Falls (Harger).

Cynoglossum boreale Fernald. Warren (Harger).

Agastache scrophulariaefolia (Willd.) Kuntze, var. mollis (Fernald) Heller. Naugatuck (A. F. Hill); Washington (A. W. Evans) not previously reported from New Haven Co.

†Salvia Sclarea L. Clary. Bridgeport (Eames). Introduced from Europe.

BLEPHILIA HIRSUTA (Pursh) Benth. Washington (A. W. Evans). Previously reported only from Waterbury and Thomaston.

†Mentha verticillata L., var. pilosa (Spreng.) Briq. Moist roadside, Newtown (Eames). "One of the variations of a hybrid of *M. arvensis* and *M. aquatica*." M. L. Fernald.

†M. STACHYOIDES Host. Dry roadside, Newtown (Eames). "A polymorphous hybrid of *M. arvensis* and *M. rotundifolia.*" M. L. Fernald.

†Perilla frutescens L., var. crispa (Benth.) Deane. Rare. Bridgeport (Eames).

†Solanum triflorum Nutt. Waste ground at State Pier, New London (K. P. Jansson). Fugitive or adventive from the western U. S.

†Linaria Spartea (L.) Hoffmansegg & Link. Plentiful in a dry field, Fairfield (Eames). A white-flowered form also occurs at this station.

†L. RETICULATA Willd. Rare. Fairfield, with the preceding (Eames).

†L. BIPARTITA Willd. Rare. Fairfield, with the preceding (Eames).

Digitalis ambigua Murr. Washington (A. W. Evans).

Agalinis tenuifolia (Vahl) Raf. Gerardia tenuifolia Vahl. A white-flowered form occurs at Milford (A. W. Evans).

Utricularia resupinata B. D. Greene. Muddy pond margin, Woodstock (Weatherby). Not previously reported from northeastern Connecticut.

U. Purpurea Walt. Thompson, locally frequent (Weatherby). Not previously reported from Windham Co.

†Plantago media L., var. Monnieri (Giraud) Rouy. Rare. Bridgeport (Eames). Introduced from Europe.

Sherardia arvensis L. Waterbury (A. E. Blewitt).

\*Galium circaezans Michx., var. glabrum Britton. Shaded bank of ravine, Derby (Weatherby).

G. Palustre L. New Milford, North Canaan and Danbury (A. E. Blewitt); Goshen (Bissell).

G. TRIFIDUM L. Goshen (Harger). A southerly extension of range.

\*Lobelia Cardinalis L., f. alba (A. Eaton) St. John. Edges of stream, Washington (A. W. Evans).

†Lonicera bella Zabel. Westport (Eames). An escape from cultivation.

L. CANADENSIS Marsh. Union and Ashford (Weatherby). Not before reported east of the Connecticut Valley.

Erigeron ramosus (Walt.) BSP., var. septentrionalis Fernald & Wiegand. aterbury (A. E. Blewitt). Previously reported only from Greenwich and Middlebury.

E. Pusillus Nutt. Bolton (Weatherby); Old Lyme (Harger).

Silphium Perfoliatum L. Flood terraces, Roxbury (G. E. Nichols); open woods, Washington (A. W. Evans).

Aster amethystinus Nutt. Berlin (Bissell). Not previously reported from Central Connecticut.

\*A. Nemoralis Ait. Swampy thickets, margin of Long Pond, Thompson (Harger; Weatherby, Rhodora xxi. 75).

A. Dumosus L. Fairfield (Eames). An extension of range westward.

\*Antennaria petaloidea Fernald. Rare. Dry pastures, Oxford (Harger); Franklin (R. W. Woodward).

Xanthium commune Britton. Old Lyme (Bissell). An extension of range eastward.

\*Bidens Eatoni Fernald. Brackish marshes, Old Lyme (R. W. Woodward, Rhodora xx. 98)

\*B. Heterodoxa (Fernald) Fernald & St. John, var. Monardaefolia Fernald, Rhodora xix. 259 (1917). Strand of Pocotopaug Lake, East Hampton (R. W. Woodward).

\*B. Heterodoxa (Fernald) Fernald & St. John, var. Agnostica Fernald, l. c. Same locality (Bissell & R. W. Woodward).

B. Beckii Torr. Thompson (U. F. & C. A. Weatherby); Voluntown (K. P. Jansson); Litchfield and Morris (G. E. Nichols). Not before reported from east of the Connecticut Valley or from Litchfield Co.

†Gaillardia aristata Pursh. In grass land, Woodbridge (Eames). Escaped from cultivation.

Senecio viscosus L. Guilford (Bissell). Previously reported only from Stamford.

Centaurea vochinensis Bernh. Occasional, especially in grassland throughout Fairfield Co. (Eames).

Lapsana communis L. Franklin (R. W. Woodward, Rhodora xx. 98).

†Sonchus asper (L.) Hill, var. pungens Bischoff. Waste ground at Bridgeport (Eames). Flowers without ligules.

E. B. HARGER,

C. B. GRAVES,

E. H. EAMES,

C. H. BISSELL,

C. A. WEATHERBY.

## SOME NOVA SCOTIA MOSSES.

## EDWIN B. BARTRAM.

While actively engaged in field work covering portions of central and southwestern Nova Scotia during July 1921 the writer, in company with Prof. M. L. Fernald and Mr. Bayard Long, collected about 140 numbers of mosses. No attempt was made to obtain a representative series as the pressure of other work left only brief intervals in which to pick up any thing that was obviously interesting and close to hand but as the material was worked over several range extensions suggested that a brief survey of some of the more interesting species might not be unworthy of record.

The bogs, lake shores and spruce woods of Yarmouth Co., where we spent most of out time, were relatively unproductive but as we worked north through Annapolis Co. into more broken country and on through the gypsum outcrops near Windsor to the granite and sandstone areas of Hants Co. and Halifax Co. the variety of species broadened to a rather gratifying extent.

Sphagnum macrophyllum Bernh. Covering the bottom of a shallow arm of Five Island Lake, Hants Co. Dr. A. LeRoy Andrews in his letter verifying the determination of this species says that this is the first record outside of the range from Maine to Florida given in the North American Flora and therefore new to Canada. It seems to be one of pine barren elements like Sphagnum Pylaesii or Utricularia purpurea that has spread northward through the marshes and pools of the coastal plain at a time when a continuous land connection existed between Newfoundland, Nova Scotia and the coastal plain